



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/637,115	08/08/2003	Haijun Yuan	AVA-P007	3827

47389 7590 08/10/2006
PATTERSON & SHERIDAN, LLP
3040 POST OAK BLVD
SUITE 1500
HOUSTON, TX 77095

EXAMINER

VU, PHU

ART UNIT	PAPER NUMBER
----------	--------------

2871

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/637,115

Applicant(s)

YUAN ET AL.

Examiner

Phu Vu

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments, with respect to the rejection(s) of claim(s) 1, and 3-14 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Silberberg 20030194165

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, 3-4, and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silberberg 20030194165 in view of Bouevitch 20030035605.

Regarding claims 1, 7 and 11, Silberberg teaches a C-polarizer having a birefringent crystal having a first a face and a second receiving a collimated beam and separating the collimated beam into a P polarization beam and an S-polarization beam (see fig. 20 element 312).

Silberberg also teaches a waveplate (319) coupled to the second face of the crystal for rotating the S-polarization beam by 90 degrees, thereby causing the rotated S-polarization beam to have the same polarization as the P polarization beam and a liquid crystal tunable filter (340) for receiving the P and rotated S polarization beam from

the C-Polarizer wherein the P and rotated S polarization beam are separate from one another.

Silberberg omits the teaching the beam waists of the P and S polarization beams are located substantially at the beam waist of a liquid crystal cavity of the filter however, Bouevitch discloses that locating a liquid crystal cavity at the beam waist of a laser in order to increase channel bandwidth of the laser (see [0119]). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to locate the beam waist at a liquid crystal cavity in order to increase channel bandwidth.

Regarding claim 3, 8, and 12, Silberberg teaches a beam collimator (322) coupled to the first surface of the C polarizer, the beam collimator providing a minimal space separation between the P polarization beam and rotated S beam.

Regarding claim 4, since the polarization states are matched prior with respect to polarization states prior to entering the LC and pass through the LC cell than this limitation is met.

Regarding claims 9 and 13, matching the alignment of the LC filter in the direction of the liquid crystal (see fig. 4) as the liquid crystal in the filter is aligned as aligning does not imply any structure as there is no structure set forth without a limitation of exactly how these are aligned, therefore, the device is considered aligned (see fig. 20).

Regarding claims 10 and 14, Silberberg disclose a liquid crystal device with electrodes that produce a voltage across a liquid crystal layer which affects the S and P polarization beams (se claim 24).

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silberberg in view of Bouevitch and further in view Tsai 2002/0122444.

Regarding claim 5 and 6, the reference teaches all the limitations of claim 6 except a photodiode or a bi-cell photodiode having a first cell and a second cell, the first cell for receiving the P polarization beam, the second cell of the bi-cell photodiode receiving the rated S-polarization beam. Silberberg teaches an optical fiber further directing the beam to some sort of optical detector [0147] however omits the type of detector used. Tsai teaches an optical filtering system that teaches bi-cell photodiodes are conventional detection mechanisms [0048]. Conventionality has associative benefits as lower cost, ready availability. Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply bi-cell photodiodes to gain benefits of conventionality.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the


shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu Vu
Examiner
AU 287


ANDREW SCHECHTER
PRIMARY EXAMINER